



Removal of a retroperitoneal foreign body through single port laparoscopy using nephroscope

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ABSTRACT

Foreign bodies are rare and challenging issues leading to symptoms according to the location. Laparoscopy is a popular and minimally invasive method used for removal of foreign bodies in the abdominal cavity or retroperitoneum. We herein report a case with retroperitoneal foreign body that was removed through retroperitoneal single- port laparoscopy using nephroscope. To our knowledge this is the first case of removal of a retroperitoneal foreign body through single- port laparoscopy using nephroscope.

Keywords: Foreign body; nephroscope; single port.

Introduction

Although entry sites of foreign bodies into body demonstrate variations, frequently they are inserted into body cavities either iatrogenically or percutaneous route. Up to now most frequently open surgery has been used for the removal of foreign bodies, however thanks to innovative technology, laparoscopic methods which have better cosmetic results with lesser morbidity have started to replace open surgical techniques.^[1] Laparoscopy has become a standard procedure applied in many surgical approaches, and it is being used successfully for the removal of foreign bodies. Single- port laparoscopic procedures have been started to be used in order to decrease morbidity of the procedure, and improve cosmetic results.^[2]

Although many case reports have been published about transvesical extraction of foreign bodies through a single- port^[3], in only one literature study removal of an intraperitoneal foreign body through a single- port has been reported so far.^[4] We are presenting the first case in the literature where we extracted foreign body using a retroperitoneoscopic ap-

proach through a single trocar with the aid of a nephroscope and under flurosocopic guidance.

Case presentation

The anamnesis obtained from a 24-year-old female patient who consulted our clinic with intermittent flank pain revealed that she fell down on a needle 10 years ago. At that time her attending physician said that the needle hadn't do any harm, and follow-up of the patient had been recommended. Her physical examination, and routine laboratory test results were unremarkable. On her kidney-ureter-bladder (KUB) radiogram an opaque foreign body at the level of L4-5, and 3 cm lateral to the right side of the spine with its vertical axis making a 45° angle with the vertebrae was detected. Whole abdominal non-contrasted computed tomography (CT) demonstrated a nearly 3 cm-long foreign body lying vertically between the lower pole of the kidney, and the psoas muscle (Figure 1a-c). Actual clinical manifestations of the patient was thought to be related to the presence of this foreign body. The patient was informed about the treatment alternatives (open or laparoscopic surgery) and potential complications, and her informed consent was obtained.

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Retroperitoneoscopic intervention under general anesthesia was planned. The patient was laid down at right 90° angle in lumbotomy position, then under fluoroscopic control the level of foreign body was marked, and through a 2 cm incision made at the level of L4-5, immediately lateral to the paraspinal muscles retroperitoneal area was entered, and dissected bluntly with finger to palpate the foreign body at the retroperitoneal area. Afterwards, a single 10 mm-trocar was inserted into the retroperitoneal area, and retroperitoneal cavity was insufflated with CO₂, then a 24 Fr nephroscope was inserted through the trocar. In the retroperitoneal area foreign body extending to the lower pole of the kidney was clearly seen. The foreign body was taken out with a grasper in two pieces. Nephroscopic control confirmed complete removal of the foreign body (Figure 2a-c). Retroperitoneal pressure was lowered, and hemostatic control was made. Since any bleeding did not occur there was no need to use a drain. The whole procedure lasted only 30 minutes. X-ray performed on postoperative 1. day revealed

complete removal of the foreign body. Her postoperative follow-up period was uneventful, so she was discharged on the 1. postoperative day. At follow-up visits very small incision scar was noted when compared with open surgery, and standard laparoscopy (Figure 3a-c). Preoperative complaints of pain disappeared completely.

Discussion

Despite all precautions taken, the incidence of foreign bodies detected in the body ranges between 0.03, and 0.1%. They are most frequently localized in the intraabdominal cavity followed by tracheobronchial area, pleural cavity, pararenal area, vagina, spinal chord, neck, femur, breast, bladder, pancreas, and they may cause local irritation, and infection.^[6] Foreign bodies can enter into body through various routes by way of iatrogenic, and percutaneous interventions. In the literature entries of foreign bodies into intraabdominal cavity have been classified under 4

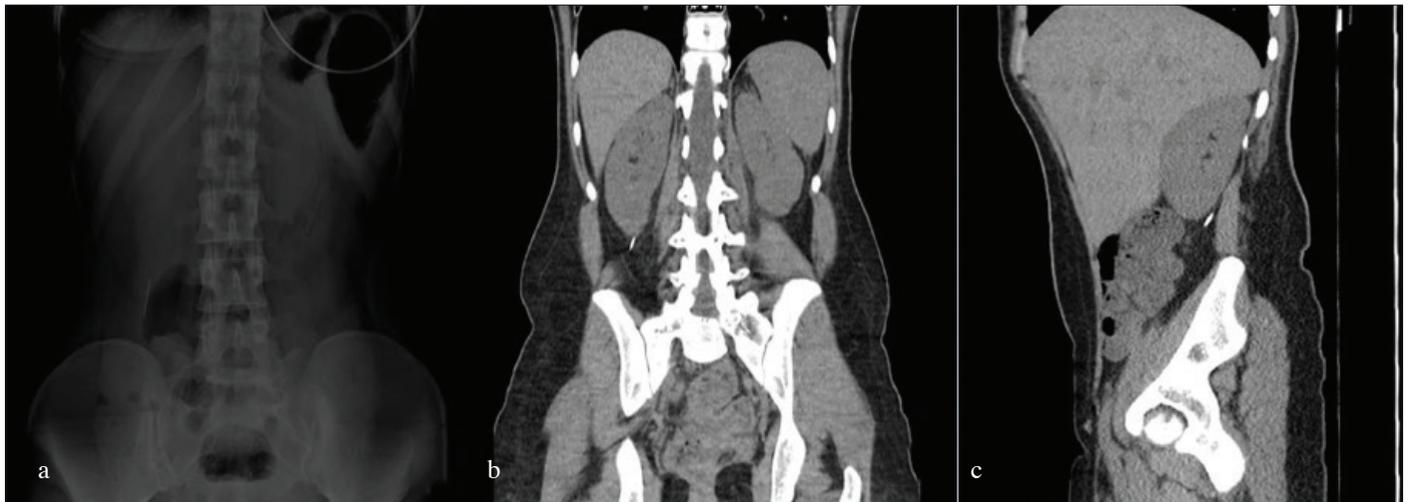
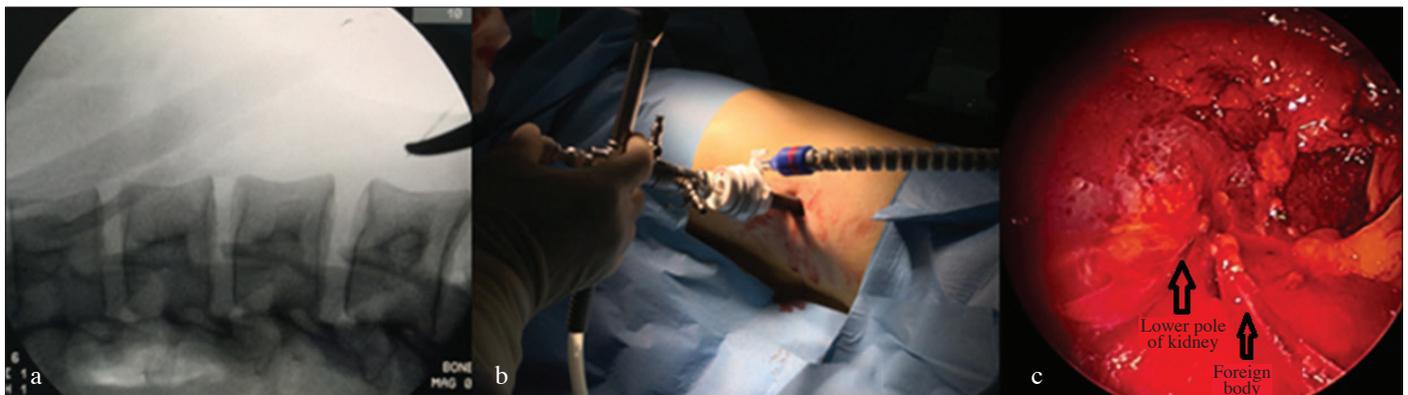
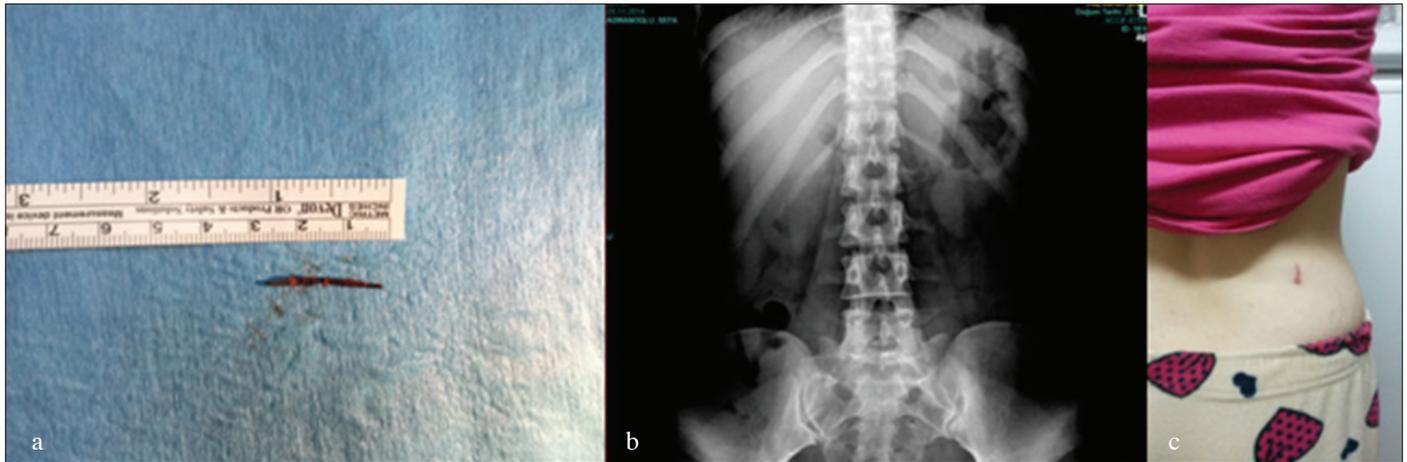


Figure 1. a-c. Preoperative KUB and CT
KUB: Plain kidney-ureter-bladder radiogram; CT: computed tomography



Figures 2. a-c. Peroperative figures



Figures 3. a-c. Postoperative figures

main headings as percutaneous, postoperative, iatrogenic, migration following swallowing of the foreign bodies, and transvaginal route.^[7]

Preoperative, and intraoperative localization of the foreign bodies using radiological methods in a patient scheduled for surgery is absolutely indicated. KUB, ultrasound, CT, magnetic resonance imaging or PET-CT are imaging methods used for the localization of the foreign bodies.^[8-10] Tactile sense felt during open surgery is absent in laparoscopic surgery which complicates laparoscopic detection of small foreign bodies. Fluoroscopy or ultrasound is the most frequently used imaging modalities during surgery.^[11-13] In our case since foreign body had radiopacity, we also used fluoroscopy to clearly localize the foreign body during operation.

Following application of the first laparoscopic cholecystectomy in the year 1987, advanced laparoscopic surgery has been applied more frequently. Thanks to lower complication rates, milder postoperative pain, better cosmetic results, and earlier return to routine daily activities, nowadays laparoscopic methods are preferred in many areas. In standard laparoscopic procedures ≥ 3 ports are used. Increase in the number of ports can be associated with higher rates of complications as bleeding, infection, organ injury, postoperative pain, and incisional hernia. Besides higher number of scars lead to unfavourable cosmetic results.^[14] Consequently, the concept of single-port laparoscopy has been proposed.^[14,15] Studies performed have shown that single-port laparoscopic procedures ensure lower perioperative pain scores, lesser need to use postoperative analgesia, and better cosmetic appearance.^[2]

Though traditionally, open surgery has been preferred for the removal of foreign bodies from bodily cavities, and with accumulating experience use of (standard or single port) laparoscopic

methods has been reported. Although open surgery appears to be superior to laparoscopic methods in that the foreign body can be palpated, it is not preferred nowadays, in that it has a higher morbidity, and complication rates with longer hospital stay, and cosmetic problems.

As a consequence of developments in laparoscopic surgery, as an alternative to standard laparoscopy, single-port laparoscopy can be used for the extraction of foreign bodies. Milder perioperative pain, better cosmetic results, lesser number of ports used with resultant lower complication rates are superiorities of single-port laparoscopy over standard laparoscopy. In our technique, through a 10 mm trocar 24 Fr nephroscope was advanced into retroperitoneal cavity, and the foreign body was extracted with the aid of a grasper. Thus without any need for creation of an extra port for a second working element, foreign body was removed safely, and within a very short time.

Laparoscopic methods can be used for the extraction of foreign bodies from inside the body with advantages over open surgery including lower postoperative morbidity, and improved wound healing. In selected cases extraction of a foreign body through a single-port using a nephroscope can be especially, and successfully performed for foreign bodies retained in the intraperitoneal cavity.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

Peer-review: Externally peer-reviewed.

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